AMOSOV, N.M.; GOL'DBERG, V.N.; [illegible], Yu. N.; SIDARENKO, L.N.; CHEPKIY,
L.P.

Mitral valve prosthesis. Vest. AMN SSSR 18 no.9:9-18 '63.
(MIRA 17:9)

1. Ukrainskiy nauchno-issledovatel'skiy institut tuberkuleza i grudnoy khirurgii.

SIDARENKO, L.N. (Kiyev, ul. Tarasovskaya, d.9, kv.28)

Pleuropneumonectomy for tuberculous pleural empyema. Nov. khir.arkh. no.1:49-54 Ja-F '59. (MIRA 12:6)

1. Kafedra torakal'noy khirurgii (zav. - prof.N.M.Amosov) Kiyevskogo instituta usovershenstvovaniya vrachey i 2-ya khirurgicheskaya klinika (zav. - prof.N.M.Amosov) Kiyevskogo nauchno-issledovatel'skogo instituta tuberkuleza.
(LUNGS--SURGERY) (EMPYEMA)

SIDARENKO, L. N. Cand Med Sci -- (diss) "Pleuropneumonectomies in the treatment of tubercular empyemas of the pleura." Kiev, 1960, 16 pp, (Kiev Order of Labor Red Banner Med Inst im Academician A. A. Bogomol'yets), 250 copies, (KL, 31-60, 144)

AMOSOV, N.M.; LISSOV, I.L.; MOKHNYUK, Yu.N.; SIDARENKO, L.N.; TRESHCHINSKIY, A.I.

Heart operations with the use of artificial blood circulation.
Grud. khir. 2 no.6:18-30 N-D '60. (MIRA 14:1)

1. Iz kliniki torakal'noy khirurgii Ukrainskogo instituta tuberkuleza (dir. - dotsent A.S. Mamolat) i kafedry torakal'noy khirurgii Kiyevskogo instituta usovershenstvovaniya vrachey (dir. - dotsent M.N.Umovist). Adres avtorov: Kiyev, 38, Baykovaya gora, Institut tuberkuleza.

(BLOOD—CIRCULATION, ARTIFICIAL)
(HEART—SURGERY)

SIDARENKO, L.N., kand.med.nauk

Diagnosis and indications for surgical treatment of defects in the interauricular and interventricular septa. Vrach. delo no.12:75-79 D '61. (MIRA 15:1)

1. Kafedra torakal'noy khirurgii Kiyevskogo instituta usovershenstvovaniya vrachey (zav. - chlen-korrespondent AMN SSSR, prof. N.M.Amosov).
(HEART—SURGERY)

AMOSOV, N.M., prof.; LISSOV, I.L.; MOKHNYUK, Yu.N.; SIDARENKO, L.N.;
TRESHCHINSKIY, A.I.

Preliminary experience with the use of artificial circulation in cardiac surgery. Vest.khir. 86 no.3:10-20 Mr '61. (MIRA 14:3)

1. Iz Ukrainskogo instituta tuberkuleza (dir. - dotsent A.S. Mamolat) i Kiyevskogo instituta usovershenstvovaniya vrachey (dir. - dotsent M.N. Umovist).
(BLOOD—CIRCULATION, ARTIFICIAL)

AMOSOV, Nikolay Mikhaylovich, prof.; LISSOV, Igor' Leonidovich;
SIDARENKO, Lena Nikolayevna: Prinimali uchastiye:TRESHCHINSKIY,
A.I.; MOKHNYUK, Yu.N.; MALAKHOVA, A.V.; BEREZOVSKIY, K.K., red.;
CHUCHUPAK, V.D., tekhn. red.

[Heart surgery with artificial blood circulation] Operatsii na serdtse s iskusstvennym krovoobrashcheniem. Pod red. N.M. Amosova. Kiev, Gos.med.izd-vo USSR, 1962. 245 p. (MIRA 16:7)

1. Chlen-korrespondent AMN SSSR (for Amosov).
(HEART--SURGERY) (PERFUSION PUMP (HEART))

PATSKINA, S.A.; SIDARENKO, L.N., kand.med.nauk

Function of the adrenal cortex in operations with artificial blood circulation. Vrach. delo 4:75-80 Ap '62. (MIRA 15:5)

1. Kafedra torakal'noy khirurgii i anesteziologii (zav. - chlen-korrespondent AMN SSSR prof. N.M.Amosov) Kiyevskogo instituta usovershenstvovaniya vrachey.

(ADRENAL CORTEX) (SURGERY, OPERATIVE)
(BLOOD--CIRCULATION, ARTIFICIAL)

SIDARENKO, L.N., kand.med.nauk

Surgery with artificial circulation in defects of the interventricular septum. Khirurgiia no.9:30-36 '62. (MIRA 15:10)

1. Iz kafedry torakal'noy khirurgii (zav. - prof. N.M.Amosov) Kiyevskogo instituta usovershenstvovaniya vrachey.

(HEART--SURGERY) (PERFUSION PUMP (HEART))

SIDARENKO, L.N. (Kiyev, 110, Novostroitel'naya, ul., d. 29, kv. 5)

Analysis of lethality following operations with artificial blood circulation. Grud. khir. 5 no.6:20-26 N-D'63
(MIRA 17:2)

1. Iz kliniki serdechnoy khirurgii (nauchnyy rukovoditel' - chlen-korrespondent AMN SSSR N.M.Amosov) Ukrainskogo nauchno issledovatel'skogo instituta tuberkuleza i grudnoy khirurgii (direktor - dotsent A.S.Mamolat).

SIDARENKO, L.N. (Kiyev, 110, Novostroitel'naya ul., d,29,kv.5); CHEPKIY, L.P.;
GOL'DBERG, V.N.

Some aspects of the use of corticosteroids in heart surgery. Grud.
khir. 6 no.4:68-73 Jl-Ag '64. (MIRA 18:4)

1. Klinika serdechno-sosudistoy khirurgii (nauchnyy rukovoditel' - chlen-korrespondent AMN SSSR prof. N.M.Amosov) Ukrainskogo nauchno-issledovatel'skogo instituta tuberkuleza i grudnoy khirurgii imeni F.T.Yanovskogo (dir. - dotsent A.S.Mamolat), Kiyev.

VOL'FKOVICH, S.I.; IONASS, A.A.; REMEN, R.Ye.; SIDEL'KOVSKIY, L.N.;
SHCHEVELEV, V.N.

Hydrothermal processing of phosphates from various deposits.
Zhur. prikl. khim. 38 no.1:3-10 Ja '65.
(MIRA 18:3)

SIDARKEVICHYUS, V. [Sidarkevicius, V.] (Pil'vishkyai, Litovskoy
SSR)

Home-made physical devices. Fiz. v shkole 21 no.1:69-71
Ja-F '61. (MIRA 14:9)
(Physical instruments)

S/032/60/026/02/040/057
B010/B115

28(4), 9(7)

AUTHORS: Samylin, A. K., Sidash, Ye. S.

TITLE: An Electronic Potentiostat for Electrochemical Investigations

PERIODICAL: Zavodskaya laboratoriya, 1960, Vol 26, Nr 2, pp 223-226 (USSR)

ABSTRACT: A tentative experimental model of a potentiostat consisting of an amplifier unit and a current-supply unit was designed. The amplifier unit (cf scheme in figure 2) contains the amplifier, a cathode voltmeter, and the master circuit. The cathode voltmeter (having a millivoltmeter or a PS potentiometer) is connected in parallel with a direct-current amplifier. The circuit contains a 6N8S triode, and is a cathode follower. The master circuit has two potentiometers supplied from dry-cell batteries or accumulators (3 - 6 v). The direct-current amplifier comprises a voltage amplifier (two cascades) and a current amplifier (1 cascade). The voltage amplifier contains a 6Zh3P pentode, and has a total amplification coefficient of about 500. The discharge cascade consists of 6 6P3S tetrodes connected in parallel. The current-supply unit (cf scheme in figure 3) is housed within a special case and consists of two rectifiers. One rectifier has 5Ts4S kenotrons, and ssrves to

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Card 1/2

feed the anode circuit of the cathode voltmeter and the direct-current amplifier. The other rectifier has 5Ts3S tubes and feeds the discharge cascade. The maximum sharpness of the working characteristic of the potentiostat is 1600 ma/v, and has a pass band between 0 and 16 kcps. The voltage-regulation range is 200 mv (Fig 4: working characteristics of the device). The circuit diagram of the device is given (Fig 5). Satisfactory results were obtained by M. B. Litvinskaya in the chemical laboratory of the institute mentioned hereafter. There are 5 figures and 1 reference.

ASSOCIATION: Ukrainskiy nauchno-issledovatel'skiy trubnyy institut (Ukrainian Scientific Research Institute of Tubes)

L 19184-63 EWP(q)/EWT(m)/BDS AFFTC/ASD JD/MJW
ACCESSION NR: AR3004207 S/0276/63/000/005/G046/G046

SOURCE: RZh. Tekhnologiya mashinostroyeniya, Abs. 5G293 57

AUTHOR: Sidash, Ye. S.; Vereshchagin, A. D.; Ivashchenko, V. I.

TITLE: Automatic dosimeter of liquid metal 16 for centrifugal casting machines 18

CITED SOURCE: Sb. Mekhaniz. i avtomatiz. liteyn. proiz-va. Kiyev, 1962, 166-172

TOPIC TAGS: centrifugal casting machine, liquid-metal casting dosimeter, tensoelectronic scale , dosimeter operation, automatic control, ladle looking mechanism

TRANSLATION: Dosimeter represents tensoelectronic scales with wire indicators and selfcompensating measuring device. The scales are automatically linked with the device and are operated by means of a special drive through a stopper mechanism of the casting ladle. Change in the ladle weight is recorded from the moment of stopper opening and is measured by means of an indicator. This indicator represents an elastic roller operating on torsion, and has tensoresistors attached to it. This change in ladle weight is transmitted to the scales. Here the signal proportional to the weight of measured metal is added by means of stress to the

Card 1/2

L 19184-63
ACCESSION NR: AR3004207

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constant preliminarily set by the operator. It then enters an automatic compensator whose scale is calibrated in weight units. The arrow of the device moves along the scale following changes in the ladle weight. When this arrow passes by the arrow of the commanding indicator it disconnects a photorelay. Through the block of automation which originates the control signal for the electrohydraulic gate valve of the oiler, the oil pressure in the upper and lower parts of the hydraulic drive cylinder of the ladle locking mechanism is reversed. This action causes a downward shift of the drive piston as well as overlapping of the locking aperture of the ladle. Capacity of the measuring ladle is 500 kg. Basic error of the dosimeter is plus minus 5 kg within the limits of set weights of 40 to 250 kg. Four figures. L. Yanovskaya.

DATE ACQ: 21Jun63 SUB CODE: IE ENCL: 00

Card 2/2

S/032/62/028/012/016/023
B108/B186

AUTHORS: Samylin, A. K., and Sidash, Ye. S.

TITLE: An electronic potentiostat with high output current

PERIODICAL: Zavodskaya laboratoriya, v. 28, no. 12, 1962, 1510 - 1512

TEXT: The study of anodic dissolution with a controlled potential is a promising method. The authors therefore designed an electronic potentiostat with high output current. It is based on the intermediate transformation of the mismatch signal from the sample electrode into a variable voltage which, together with the voltage from a standard electrode in the electrolytic cell, is led into a modulator and then into the phase detection and amplification stages of the potentiostat. The voltage from the output of this stage is rectified and smoothed. The ratio between the phases of the modulator (50 cps) and the synchronous (phase) detector is so chosen that a deviation of the potential of the specimen in the positive direction reduces the output current and vice versa. The circuit diagram of the potentiostat is shown in Fig. 1. The transconductance of its operating characteristic can reach $2.25 \cdot 10^6$ ma/v. There are 3 figures.

Card 1/3

An electronic potentiostat... S/032/62/028/012/016/023
B108/B186

ASSOCIATION: Ukrainskiy nauchno-issledovatel'skiy trubnyy institut (Ukrainian Scientific Research Institute of Pipes)

Fig. 1. Legend: (1) to vacuum tube voltmeter, (2) to standard electrode, (3) to specimen, (4) input, (5) output.

Card 2/3

[illegible], [illegible], [illegible]; [illegible], A.K., inzh.; [illegible], [illegible], inzh.

Possibility of using a magnetic anisotropy transformer with a logometer in systems for the control of power parameters of pipe rolling mills. Proizv. trub no.11:123-126 '63.

Magnetic tensometric overloading relay. Ibid.:127-131
(MIRA 17:11)

[illegible]

[illegible], [illegible], inzh.; [illegible], [illegible], inzh.; [illegible], [illegible], inzh.

Operation of a magnetic anisotropy converter in a generator system. Proizv. trub no.12:119-122 '64.

(MIRA 17:11)

AID P - 5091

Subject : USSR/Engineering

Card 1/2 Pub. 128 - 20/26

Authors : Kholomina, O. A., Kand. Econ. Sci., and V. M. Sidashenko, Eng.-Econ.

Title : Organization of tool supply shops at a mass production plant.

Periodical : Vest. mash., 5, 76-86, My 1956

Abstract : The authors present recommendations for the reorganization of [illegible]l shops in machine plants. The suggested measures for the improvement of the shop management are in accordance with the conditions at the 2.Moscow Watch and Clock Plant. A detailed classification of tools by groups, subgroups, varieties and types is recommended, and illustrated by 4 tables. This standardization is based on GOST 5446-50-5453-50. The authors explain at length how the appropriate classification of tools

PUTINTSEVA, M.A.; BODRTDINOV, A.Z.; OSTROUMOV, V.L.; PUTINTSEV, Ye.A.; SIDASHOV, A.I.; KHOMENKO, V.A.; LETNEV, B.Ya., red.; KOBYAKOVA, G.N., tekhn. red.

[Technical maintenance of machines and tractors by expert machine adjusters] Tekhnicheskoe obsluzhivanie mashinno-traktornogo parka masterami-naladzhikami. Moskva, Sel'khozizdat, 1963. 87 p. (MIRA 16:10)
(Agricultural machinery--Maintenance and repair)

KAVECKIS, Mikolas, prof., doktor geol.-miner. nauk; PRANAITIS,
VACLOVAS, inzh.; SIDAUGA, Bronius, kand. geol.-miner.
nauk; BECONIENE, O., red.

[Engineering geology] Inzinerine geologija. Visuomeniniais pagrindais mokslinių poziuriu redagavo B.Sidauga. Vilnius, Leidykla "Mintis," 1965. 314 p. [In Lithuanian]
(MIRA 18:6)

Abs Jour : Ref Zhur - Biologiya, No 2, 1959, No. 6397

Author : Siddikov, Kh.

Inst : Geogr. Society USSR, Uzb Branch

Title : Present State of Cultivation of Orchards and of Viticulture in the Kolkhoz' of the Tashkent Oblast'

Orig Pub : Izv. Uzbekist. fil. Geogr. o-va USSR, 1957, 3, 113-127

Abstract : The natural-historical conditions are described. The state of cultivation of orchards in various regions is also described. The progress of reconstruction of orchards and vineyards damaged by frost in November 1954 is evaluated. The prospects of development of orchard cultivation are indicated.

Card 1/1

ACC NR: AP7004722 (N) SOURCE CODE: UR/0413/67/000/001/006/007

INVENTOR: Murasov, A. Sh.; Karpiles, I. I.; Sidekhmenov, V. K.; Sazanov, V. M.

ORG: None

TITLE: A method for making thin-walled tubular parts. Class 7, No. 189792

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 1, 1967, 6-7

TOPIC TAGS: thin shell structure, pipe

ABSTRACT: This Author's Certificate introduces a method for using a filler to make thin-walled tubular components. A compensation cavity which may be tapered is formed in the center of the filler material for tightly packing the recess inside the finished component and improving the quality of the resultant product.

SUB CODE: 13/ SUBM DATE: 26Oct64

Card 1/1 UDC: 621.983.3-462

VOL'FKOVICH, S.I.; IONASS, A.A.; POSTNIKOV, N.N.; REMEN, R.Ye.; SIDEL'DOVSKIY, L.N.; SHURYGIN, A.P.; DEREVITSKIY, P.F.; YAGODINA, T.N.

Hydrothermal process of defluorination of natural phosphates in a cyclone furnace. Khim.prom. no.8:674-680 D '59. (MIRA 13:6)

1. Nauchnyy institut po udobreniyam i insektofungisidam im. Ya.V. Samoylova i Moskovskiy energeticheskiy institut im. Molotova.
(Phosphates) (Fluorine)

[illegible]

[illegible]

[illegible]

KHIMICH, Georgiy Lukich, inzh.; GOLUBKOV, Konstantin Alekseyevich;
KONDRATOV, Yuriy Nikolayevich; NISKOVSKIKH, Vitaliy
Maksimovich; SIDELEV, Nikolay Petrovich; PAL'MOV, Ye.V.,
doktor tekhn. nauk, retsenzent; DUGINA, N.A., tekhn. red.

[Improving the quality and economic efficiency of machinery]
Povyshenie kachestva i ekonomichsnoti mashin. Pod red. G.L.
Khomicha. Moskva, Mashgiz, 1962. 124 p. (MIRA 15:7)
(Machinery industry)

[illegible], [illegible]; [illegible]; [illegible]LEV, N.I.; [illegible], A.N., red.

[Practice in the organization of economic work at the [illegible]] [illegible] opyt organizatsii ekonomicheskoi raboty [illegible]. Moskva, Ekonomika, 196[illegible]. 150 p. (MIRA [illegible]:9)

SIDELEV, N.P., inzh.; SI[illegible]NKO, V.N.

Economic efficiency in the use of welded structures. Sbor. st. NIITIAZHMASh-a Uralmashzavoda no. 3:17-20 '64. (MIRA 17:7

SIDELEV, N.P., inzh., KALGANOV, V.I.

Economic efficiency of metal deposition processes. Sbor. st. NIITIAZHMASHa Uralmashzavoda no. 3:92-98 '64. (MIRA 17:7)

SIDELEV, N.P., inzh.; TRIGUB, M.Yu., inzh.; POPOVA, L.G., inzh.

Economic efficiency of the use of multiple-purpose attachments with interchangeable parts. Sbor. st. NIITIAZHMASHa Uralmashzavoda no.4:134-142 '64. (MIRA 17:12)

15 (2)

AUTHORS: Sidelev, N. S., Grigor'yev, N. V. SOV/131-59-9-4/12

TITLE: Mechanized Discharge and Conveyance of Fire-clay

PERIODICAL: Ogneupory, 1959, Nr 9, pp 401-402 (USSR)

ABSTRACT: In the fire-clay section of the Semiluki Works of Refractories formerly 12 workmen were occupied with the transportation of fire-clay by means of tipping trucks. In 1958 a team of efficiency experts had together with the design office of the work elaborated a project for the mechanization of the discharge and the conveyance of the fire-clay and used for this purpose a conveyor consisting of plates (Fig 1). The fire-clay is transported from the bunkers of the shaft furnaces to the metal plate conveyors, and then on to a collecting rubber conveyor belt (Fig 2). By means of a distributing conveyor belt the fire-clay is then transported to the respective bunkers. Among the 16 shaft furnaces 10 are mechanized at the time being, whereas the remaining fire-clay is provisionally discharged and removed by hand. Starting and stopping of the conveyor belts is done by remote-control. By the mechanization of the discharge and the conveying of the fire-clay more than 200000 Roubles could be saved, and heavy manual labour was eliminated. There are 2 figures.

Card 1/2

Mechanized Discharge and Conveyance of Fire-clay SOV/131-59-9-4/12

ASSOCIATION: Semilukskiy ogneupornyy zavod (Semiluki Works of Refractories)

Card 2/2

2179 Sidelkin, N.

Prikhodo-Raskhodiaya Smeta Kolkhoza. M. Gosfinizdat, 1954. 128s.
17sm. (V Pomoshch' Kolkhoz. Aktivu). 50.000 EKZ. (1-30Tys.) 1r. 50k.-
(54-55896)p 657:31:338.1k

SIDELKIN, N.

7706. SIDELKIN, N. - Uchet I otchetnost'v kolkhozakh. (Ucheb. materialy dlya zaoch. obucheniya predsedateley I chlenov revizionnykh komis. kolkhozov). pod Red. A. Krasnova. (Stalinabad, 1954). 158 s.20sm. (m-vo sel'skogo khozyaystva SSSR. vsesoyuz. zaoch. uchetnyye kursy vzuk). 1.000 ekz. B. Ts. -- Na tadzhik. yaz.--(55-3498) 657.54:338.1K

SO: Knizhmaya Letopis', Vol. 7, 1955

SIDELKIN, N.

7705. SIDELKIN, N. - Uchetiotchetnost'v. kolkhozakh Ucheb. Material dlya zaoch. obucheniya predsedateley i chlenov revizionnykh komissiy kolkhozov. pod red. V. A. lyambek. (ispr.izd.) M., 1955 148 S. 20sm. (Glav.upr.podgotovki kadrov M.-va Sel'skogo khozyaystva SSSR. vsesoyuz. zaoch. uchetnyye kursyvzuk). 8.000 ekz. bespl.--(55-4306) 657.54:338.1K

SO: Knizhnaya Letopis', Vol. 7, 1955

DEDOVETS, E. SIDELKIN, N.

DEDOVETS, I.

"Income and expenditure estimates of a collective farm." N.Sidelkin. Reviewed by I.Dedovets. Fin.SSSR 16 no.4:88-89 Ap '55. (MIRA 8:5)
(Collective farms--Accounting) (Sidelkin, N.P.)

ZHUYKOV, Georgiy Gerasimovich; SIDELKIN, N.P., otv. red.; KOROTKOVA, L., red.; MAZURKEVICH, M., red.; TELEGINA, T., tekhn. red.

[Accounting on collective farms; from the practice of the Vladimir Il'ich Collective Farm, Ul'yanovskiy District, Moscow Province] Bukhgalterskii uchet v kolkhozakh; iz opyta kolkhoza im. Vladimira Il'icha Ul'ianovskogo raiona, Moskovskoi oblasti. Moskva, Gosfinizdat, 1962. 287 p. (MIRA 15:7)

(Collective farms---Accounting)

SIDELKIN, N.P.; PYLAYEVA, A.P., red.; TRUKHINA, O.N., tekhn.red.

[What is new in collective and state farm accounting] Novoe v kolkhoznom i sovkhoznom uchete. Moskva, Izd-vo "Kolos," 1964. 154 p. (MIRA 17:3)

1. Glavnyy redaktor zhurnala "Uchet i finansy v kolkhozakh i sovkhoza" (for Sidelkin).

1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

3RD AND 4TH ORDERS

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10

Isomerization of polymethylene hydrocarbons under the influence of aluminum chloride. VII. Isomerization of cycloheptane. M. B. Turova-Pollak and F. P. Sidel'-kovskaya. *J. Gen. Chem.* (U. S. S. R.) 11, 817-20(1941); cf. *C. A.* 35, 3613⁴.—The authors studied the isomerization of cycloheptane by $AlCl_3$. The hydrocarbon was prepd. from cycloheptanone as follows: the ketone in alc. was heated on a water bath for 6 hrs. with 90% $N_2H_4.H_2O$ in 15% excess, then the solvent and excess hydrazine were distd. off and the residue heated to 140°, dissolved in Et_2O, dried thoroughly by fused KOH and distd. *in vacuo*, yielding cycloheptanone hydrazone, b_{11} 100-10°, n_D^{20} 1.5132, d_4^{20} 0.9795, in 78-83% yield. The hydrazone was heated under reflux to 180-200° for 5 hrs. in the presency of fused KOH mixed with pieces of Pt, the reaction product sepd. from H_2O and distd. from fresh KOH and H_2O, washed with 50% AcOH, H_2O, alkali, and finally with H_2O, dried over $CaCl_2$, and distd. from Na, yielding cycloheptane (I), b_{750} 116-18°, n_D^{20} 1.4440, d_4^{20} 0.8093, in 50% yield. Three parts of I and 1 part of $AlCl_3$ were mixed for isomerization. No observable action occurred in the cold. The mixt. was stirred and heated at 117-25° for 20 hrs. with exclusion of moisture. No gases were evolved, nor did any change in the $AlCl_3$ occur. The resulting hydrocarbon (68%) was washed, dried and distd. from Na, giving 2 fractions: (1) b_{750} 98-100°, n_D^{20} 1.4205, d_4^{20} 0.7624, and (2) b_{750} 100-4°, n_D^{20} 1.4220, d_4^{20} 0.7671. In view of the proximity of the consts. the 2 fractions were assumed to be the same substance, presumably methylcyclohexane. To establish its structure it was subjected to catalytic dehydrogenation over 20% platinized charcoal at 310-15°. After 6 passes in a control expt. with I, the final product had n_D^{20} 1.4522, with but a small rise in n_D per pass. The isomerization product, however, after but 4 passes showed n_D^{20} 1.4870, d_4^{20} 0.8522, showing that a different ring structure was formed during isomerization of I by $AlCl_3$, particularly suggestive of the behavior of the cyclohexane ring on similar treatment. With the H_2SO_4 method, the amt. of aromatic hydrocarbons in the product was found to be 94%, corresponding to 97-8% hexamethylene hydrocarbons in the isomerization product. The nonaromatic residue, n_D^{20} 1.4100, was probably a mixt. of lower polymethylene hydrocarbons and aliphatic hydrocarbons. Hydrolysis of the sulfonic acids according to Kizhner and Vendelshtein (*C. A.* 20, 2316) yielded MePh, identified by its phys. constants, conversion to pentabromotoluene and oxidation to BzOH. Isomerization of I into methylcyclohexane is not reversible, as the latter treated with $AlCl_3$ does not yield I (*C. A.* 34, 727⁵).

Ibid. VIII. **Isomerization of hexahydromesitylene.** 821-3.—The authors studied the isomerization of hexahydromesitylene (I) by $AlCl_3$. I was prepd. by hydrogenation of mesitylene by a Ni catalyst (on Al_2O_3); I, purified by treatment with H_2SO_4, washing, and distn. from Na, b_{750} 137.8-9.0°, n_D^{20} 1.4290, d_4^{20} 0.7700. I was heated with $AlCl_3$ in a 3:1 mol. ratio for 20 hrs. at 140-7° in absence of moisture. The reaction mixt. sepd. into 2 layers; the upper layer, 75%, was unchanged I to a large extent; the lower layer was washed, dried and distd. over

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

Na, showing consts. very close to I. The hydrocarbon thus obtained b$_{760}$ 137.8-44°, n_D^{20} 1.4297, d_4^{20} 0.7739. Its identity was established by dehydrogenation over platinized asbestos at 305-10°. In a control expt. I passed 5 times over the catalyst gave a product with n_D^{20} 1.4083, d_4^{20} 0.8820. The isomerization product on similar treatment gave a hydrocarbon mixt. with n_D^{20} 1.4835, d_4^{20} 0.8451, which indicated a high content of aromatic hydrocarbons, corresponding to 87.8% hexamethylene hydrocarbons in the isomeride. Treatment with H_2SO_4 and hydrolysis of the sulfonic acids gave mesitylene. The nonaromatic residue had n_D^{20} 1.4280, d_4^{20} 0.7783, aniline point 55.0°. This product was passed once more over the dehydrogenation catalyst, giving a product with n_D^{20} 1.4283. By the method of the aniline point the amt. of pentamethylene hydrocarbons in the isomeride was found to be 9.2%, with about 3.0% aliphatic hydrocarbons. Thus, the isomerization by $AlCl_3$ of I yields only 9% of an isomeric pentamethylene hydrocarbon, with the bulk of I remaining unchanged.

IX. Isomerization of 1,2-dimethylcyclopentane. M. B. Turova-Pollak and E. V. Vsevolozhskaya. *Ibid.* 824-8.—The authors studied the isomerization of 1,2-dimethylcyclopentane (I) by $AlCl_3$. I was prepd. as follows. $(CH_2)_4(CO_2Et)_2$ was condensed to ethyl cyclopentanonecarboxylate, the Na salt of which was methylated to yield Et α-methylcyclopentanonecarboxylate, which after elimination of the carbethoxy group yielded 2-methylcyclopentanone, which by the Grignard reaction was converted into 1,2-dimethylcyclopentanol, which on dehydration gave 1,2-dimethylcyclopentene, which was hydrogenated to I. Et cyclopentanonecarboxylate was prepd. according to Cornubert and Borrel (*C. A.* 24, 3097). All other intermediates were prepd. according to Rysselberge (*C. A.* 21, 737). Dehydration of 1,2-dimethylcyclopentanol was done with $(CO_2H)_2$ at 115-20°, giving 75% of 1,2-dimethylcyclopentene, b$_{760}$ 101.8-2.8°, n_D^{20} 1.4428, d_4^{20} 0.7830, which was hydrogenated over Pt at 160-70°, giving 90% of I, b$_{760}$ 93.8-0.8°, n_D^{20} 1.4131, d_4^{20} 0.7577. I was passed over highly active platinized charcoal at 305-10° in order to detn. its case of dehydrogenation: the product was unchanged I. In an attempt to brominate I by Br in presence of $AlBr_3$ no cryst. product could be isolated, similarly to the case of the monosubstituted homologs of cyclopentane. I was mixed with $AlCl_3$ in 3:1 mol. ratio and heated to 100-4°. No gases were evolved nor did the $AlCl_3$ appear to be changed. A hydrocarbon was isolated in 78% yield, which on treatment with H_2SO_4 and drying with $CaCl_2$ had n_D^{20} 1.4224. A small portion of this product on bromination with Br in the presence of $AlBr_3$ gave pentabromotoluene, m. 280-2° (from PhMe). This apparently showed the product to be essentially methylcyclohexane. The hydrocarbon was fractionated over Na to give 2 fractions: b$_{760}$ 98.4-100°, n_D^{20} 1.4203, d_4^{20} 0.7649, and b$_{760}$ 100-0.8°, n_D^{20} 1.4220, d_4^{20} 0.7668. These fractions were dehydrogenated by passing over platinized charcoal at 305-10°; the products had n_D^{20} 1.4845, d_4^{20} 0.8484, and n_D^{20} 1.4806, d_4^{20} 0.8559, resp. The products were treated with H_2SO_4 and the sulfonic acids hydrolyzed, yielding PhMe (identified by its consts. and oxidation to BzOH). Calcn. back to I showed that 90.7% of it was isomerized to methylcyclohexane (expressed as cyclohexane hydrocarbons). A small residue of nonaromatized hydrocarbons was left, n_D^{20} 1.4144-1.4161 and d_4^{20} 0.7508-0.7558. G. M. K.

SIDEL'KOVSKAVA, F. P.

RIZATION OF VINYL ETHERS. VINYL ISOBUTYL ETHER

M. F. Shostakovskii and F. P. Sidel'kovskaya. *J. Gen. Chem.* (U. S. S. R.) **13**, 428-35(1943)(English summary); cf. *C. A.* **37**, 2486¹.—Pure vinyl isobutyl ether, *b* 82-2.5°, d_4^{20} 0.7693, n_D^{20} 1.3960, was polymerized with BF_3Et_2O, $SnCl_4$, $SnCl_2$, $FeCl_3$, $ZnCl_2$, $AlCl_3$ and I_2 as catalysts. $SnCl_2$ appeared to be the only substance tried which gave controllable polymerization. The ether (100 g.) was treated with 0.2% $SnCl_2$, cooled to −17° for 3-4 hrs., then allowed to warm up; polymerization became apparent with observable heat evolution; the products were freed of starting material by heating to 120-5° at 14-20 mm., or drying *in vacuo* over $CaCl_2$ and H_2SO_4. The av. polymer yield was 95%, n_D^{20} 1.4520, Br no. 5.28. The polymer is sol. in benzene, CCl_4, Me_2CO; insol. in MeOH, EtOH and water; av. mol. wt. = 2000. By means of fractional pptn. from benzene soln. by MeOH, the crude polymer was sepd. into some 6 fractions, with mol. wt. range of 4710 to 1181; i. e., the highest polymer averaged 47 monomer units. Oxidation of the polymer by HNO_3 yielded $(CO_2H)_2$; hydrolysis by Na in iso-BuOH yielded polyvinyl alc. Attempted hydrolyses by HCl or H_2SO_4 failed.

G. M. Kosolapoff

Lab. Vinyl Compounds, Inst. Org. Chem., AS USSR

SIDELKOVSKAYA, F. P.

Shostakovsky, M. F., Kagan, U. B., and Sidelkovskaya, F. P.-"Synthesis of a, B-Dichlorethyl-Alkyl Ethers and their Transformations" (p. 966)

SO: Journal of General Chemistry, (Zhurnal Obshchei Khimii), 1947, Vol. 17, No. 5

SIDEL'KOVSKAYA, F. P.

Aug 48

USSR/Chemistry - Ethers, Polymerization of
Chemistry - Polymerization

"Significance of the Purity of Vinylalkyl Ethers on the Polymerization Process: Polymerization of Vinylbutyl Ether in the Presence of Oxygen-Containing Organic Compounds," M. F. Shostakovskiy, F. P. Sidel'kovskaya, Yu. B. Kagan, Inst Org Chem, Acad Sci USSR, Lab of Vinyl Compounds, 6½ pp

"Zhur Obshch Khimii" Vol XVIII (LXXX), No 8

The degree of polymerization of vinylalkyl esters and, other things equal, the process of polymerization, depends mainly on purity of original ether. Oxygen-containing compounds -- alcohols, aldehydes, ketones and acetals -- found in commercial vinylalkyl ethers give rise to peroxide effect and reduce degree of polymerization of polyvinylalkyl ether formed. Mechanism of breaking of polymerization chains by alcohols is combination with initial vinylalkyl ethers or their polymers and formation of corresponding acetals. Submitted 20 Dec 45.

PA 19/49T27

SIDEL'KOVSKAYA, F. P.

"Investigation in the Field of Synthesis and Transformations of a, b-Dichlorethyl Alkyl Ethers." Thesis for degree of Cand. Chemical Sci. Sub 20 May 49, Inst of Organic Chemistry, Acad Sci USSR.

Summary 82, 18 Dec 52, Dissertations Presented for Degrees in Science and Engineering in Moscow in 1949. From Vechernyaya Moskva, Jan-Dec 1949.

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Synthesis and transformations of 2-chlorovinyl ethers. I. Synthesis and properties of 2-chlorovinyl alkyl ethers. M. F. Shostakovskii and E. P. Sidel'kovskaya. *Izvest. Akad. Nauk S.S.S.R., Otdel. Khim. Nauk* **1950**, 394-401.—Heating 100 g. $ClCH_2CHClOBu$ and 130 g. Et_2NPh 35 hrs. at 70-80°, filtration, and extn. with Et_2O gave 66% 2-

chlorovinyl Bu ether, b_{18} 48-50°, d_4^{20} 0.9883, n_D^{20} 1.4428. this heated 15 hrs. with 10% H_2SO_4 gave a small amt. of an aldehyde, BuOH, and *$ClCH_2CH(OBu)_2$*, b_{18} 174°, n_D^{20} 1.4310; the use of 18% H_2SO_4 (2 hrs. at 85-90°) permitted isolation of some *$ClCH_2CHO$* (*semicarbazone*, m. 130-1°); hydrolysis at room temp. is slow with 15% H_2SO_4 (20-32% in 3 hrs.). A similar reaction yielded 74% $(MeO)_2CHCH_2Cl$, b_{760} 133-4°, n_D^{20} 1.4180, d_4^{20} 1.0900, from $ClCH_2CHClOMe$. Addn. of a drop of HCl to the *Et analog* in EtOH readily gave 100% *$ClCH_2CH(OEt)_2$*, b. 150-8°, n_D^{20} 1.4170, d_4^{20} 1.0180; the *$EtOCH{:}CHCl$*, obtained in 35% yield from the *di-Cl deriv.*, as above, b_{18} 47.5-8.0°, d_4^{20} 1.0386, n_D^{20} 1.4385 [some 15% *$(EtO)_2CHCH_2Cl$* was also formed]. *iso-Pr-OCH:CHCl*, b_{18} 44-5.7°, d_4^{20} 1.0240, n_D^{20} 1.4380, was obtained similarly in 25% yield, along with 20% *$(iso\text{-}PrO)_2CHCH_2Cl$*, b_{18} 80-3°. The 2-chlorovinyl ethers polymerize with $SnCl_4$ or $FeCl_3$ catalysts, but not with Bz_2O_2. The iso-Pr member is completely hydrolyzed to $ClCH_2CHO$ by 18% H_2SO_4 in 0.5 hr. at 60-5°. G. M. Kosolapoff

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CA

Synthesis and transformations of β-chlorovinyl alkyl ethers. II. Reaction of β-chlorovinyl alkyl ethers with potassium hydroxide and sodium. M. F. Shostakovskiĭ and I. P. Sidel'kovskaya. *Izvest. Akad. Nauk S.S.S.R., Otdel. Khim. Nauk* 1950, 631-6; cf. C.A. 45, 2851.—Rapid addn. of 10 g. powd. KOH to 18 g. CHCl:CHOEt and subsequent distn. gave 57% KCl, 6 g. unreacted ether, and 16% *HC:COEt*, b. 50.2°, d_4^{20} 0.800, n_D^{20} 1.3726, giving a yellow ppt. with NH_2OH-CuCl. The Bu analog (12.7 g.) similarly gave 6 g. unreacted ether and 8.4% *HC:COBu*, b. 106.8°, n_D^{20} 1.4020, d_4^{20} 0.8200, also giving a yellow Cu deriv. Neither ether could be analyzed for C and H because of their explosive combustion. Addn. of 15 g. CHCl:CHOBu to 1 g. Na dust in 25 ml. dry Et_2O (spontaneous reaction) and refluxing 1.5 hrs. gave 1 g. tar, some BuONa, NaCl, a trace of C_2H_2, 1.6% HC:COBu, and 10% CH_2:CHOBu. No Wurtz-type products were found. The vinyl ether may arise by hydrogenation of the acetylenic analog or by halogen displacement with H from the starting material. G. M. Kosolapoff

CA

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Action of inorganic bases on 1,2-dichloroethyl alkyl ethers. M. F. Shostakovskiĭ and F. P. Sidel'kovskaya (Acad. Sci. U.S.S.R., Moscow). *Zhur. Obshchei Khim.* (J. Gen. Chem.) 20, 620-6(1950).—The reaction of alk. reagents with $CH_2ClCHClOR$ proceeds by cleavage of H and Cl ions, followed by decompn. of the unstable residue, yielding an alc., which reacts with the initial ether, forming chloroacetal. *BuOCHClCH₂Cl*, b_7 51-2°, n_D^{20} 1.4475, d_4^{20} 1.1020 (29 g.), treated with 9 g. KOH and kept 16 hrs. at 70-80° gives 1 g. unreacted ether and 10 g. $(BuO)_2CHCH_2Cl$ (I), b_{11} 113-14°, d_4^{20} 0.9620, n_D^{20} 1.4320; at 30° the reaction is the same, but its progress is slower; in BuOH, the reaction yields 53% I and BuOH; in heptyl alc. it gives 30% $ClCH_2CH(OBu)OC_7H_{15}$, b_3 157-60°, b_{16} 159°, d_4^{20} 0.8887, n_D^{20} 1.4367, some crude I, and 11%, $ClCH_2CH(OC_7H_{15})_2$, b_2 187-90°, b_2 188-8.5° (pure), n_D^{20} 1.4420, d_4^{20} 0.9247. Reaction with CaO after 15 hrs. at 70-5° gives 51% I and 20% unreacted ether, while dry K_2CO_3 gives 65% I and 21.6% unreacted ether in 20 hrs. at 70-80°. Passage of dry NH_3 into the dichloro ether at 50° (spontaneous) gives 17% unreacted ether and 33% I. The reaction with Na is sluggish at room temp., while heating leads to violent interaction, in C_6H_6 for 6 hrs. at 70-80° it gives 21% I and 25% unreacted ether.

G. M. K.

CA

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The action of inorganic bases on 1,2-dichloroethyl alkyl ethers. M. F. Shostakovskiĭ and F. P. Sidel'kovskaya. *J. Gen. Chem. U.S.S.R.* 20, 655–61(1950)(Engl. translation).—See *C.A.* 44, 7754*h*. R. M. S.

1951

SIDEL'KOVSKAYA, F. P.

191T39

USSR/Chemistry - Chloro Derivatives of Ethers **Sep 51**

"Synthesis of α, β-Dichloroethylalkyl Ethers and Their Conversions. II. Synthesis of α, β-Dichloroethylmethyl, α, β-Dichlorodiethyl, and α, β-Dichloroethylisopropyl Ethers," M. F. Shostakovskiy, F. P. Sidel'kovskaya, Lab Vinyl Compds, Inst Org Chem, Acad Sci USSR

"Zhur Obshch Khim" Vol XXI, No 9, pp 1610-1617

Improved method for prepn of α, β -dichloroethylbutyl ether, described previously, with yield of 71% of theoretical. By addn of Cl to vinylmethyl, vinylethyl, vinylisopropyl ethers, prepd corresponding

191T39

USSR/Chemistry - Chloro Derivatives of Ethers (Contd) Sep 51

α, β -dichloroethylalkyl ethers. Further chlorination yielded α, β , β -trichloroethylalkyl ethers, which were isolated and characterized. All products are easily hydrolyzed. α, β -dichloro ethers can be detd by titration with $AgNO_3$ or NaOH.

191T39

Nov. 51

SIDEL'KOVSKAYA F. P.

USSR/Chemistry - Chloroacetaldehyd

"Synthesis of Acetals of Chloroacetaldehyde,"
M. F. Shostakovskiy, F. P. Sidel'Kovskaya, Lab
of Vinyl Compds, Inst of Org Chem, Acad Sci USSR

"Zhur Obshch Khim" Vol XXI, No 12, pp 2163-2170

Worked out synthesis of acetals of chloroacetaldehyde (useful in synthesis of physiologically active amino- and betainoaldehydes and other substances) by action of alcs or alcoholates on α,β-dichloroethylalkyl ethers. Yields run as high as 90% of theoretical. Addn of Cl to vinyl ethers in presence of analogous alcs yielded corresponding acetals of chloroacetaldehyde. Addn of Cl to vinylethl ether in presence of excess BuOH yielded dibutylchloroacetal (yield 50% of theoretical). Proposes reaction mechaisms.

PA 194T61

SIDEL'KOVSKAYA, F. P.

Chem abs v48
1-25-54
Organic Chemistry

Butyl heptyl chloroacetal. M. F. Shostakovskiĭ and F. P. Sidel'kovskaya. *Akad. Nauk S.S.S.R., Inst. Org. Khim., Sintezy Org. Soedinenii, Sbornik* 2, 20-1(1952); cf. *C.A.* 42, 4520*a*; 44, 7754*k*.—To 10 g. KOH and 20 g. *n*-$C_7H_{15}OH$ was slowly added 30 g. $ClCH_2CHClOBu$; at first the mixt. is cooled with H_2O, while in the last stages it is warmed to 60-70° and kept thus for 4 hrs. After filtration of KCl (washing with Et_2O), distn. of the org. portion gave 39% $ClCH_2CH(OBu)(OC_7H_{15})$, b_{15} 158-61°, b_{14} 159°, n_D^{20} 1.4367, d_{20} 0.9337, and 7 g. $ClCH_2CH(OC_7H_{15})_2$, b_{17} 188-8.5°, n_D^{20} 1.4420, d_{20} 0.9247, the latter being formed by disproportionation of the 1st product. Similarly were obtained: 90% $ClCH_2CH(OBu)_2$, b_{17} 115-15.7°, n_D^{20} 1.4330, d_{20} 0.9682, and 77% $ClCH_2CH(OCH_2CH_2CHMe_2)_2$, b_{20} 128-30°, n_D^{20} 1.4300, d_{20} 0.9382. G. M. Kosolapoff

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1-24-54

Chem

Chem Abs V48
1-25-54
Organic Chemistry

Dimethyl chloroacetal. M. F. Shostakovskii and E. P. Sidel'kovskaya. *Akad. Nauk S.S.S.R., Inst. Org. Khim., Sintezy Org. Soedinenii, Sbornik* 2, 90-1(1952).—To 25 g. $ClCH_2CHClOMe$ is added with stirring 9.5 g. MeOH and the mixt. is kept overnight after which most of the HCl is removed with stream of dry air. Distn. yields 90% $ClCH_2CH(OMe)_2$, b_{753} 133-4°, n_D^{20} 1.4157, d_{20} 1.1080. Similarly are prepd.: 79.6% $ClCH_2CH(OEt)_2$, b_{30} 71-2°, n_D^{20} 1.4175, d_{20} 1.0172; 70% $ClCH_2CH(OCHMe_2)_2$, b_{14} 57°, n_D^{20} 1.4283, d_{20} 0.9809; 91% $ClCH_2CH(OBu)_2$, b_{17} 115-15.7°, n_D^{20} 1.4330, d_{20} 0.9682. The prepn. in the presence of KOH gives the same yield.
G. M. Kosolapoff

AF
5-19-54

SIDEL'KOVSKAYA, F. P.

Chem Abs V48
1-25-54
Organic Chemistry

✓ 2-Chlorovinyl butyl ether. M. F. Shostakovskiĭ and F. P. Sidel'kovskaya. *Akad. Nauk S.S.S.R., Inst. Org. Khim., Sintezy Org. Soedinenii, Sbornik* 2, 144-5(1952); cf. *C.A.* 44, 7754*h*.—Heating 100 g. $ClCH_2CHClOBu$ and 130 g. Et_2NPh at 70-80° 35 hrs. with stirring, followed by filtration of the amine-HCl (85 g.), washing the ppt. with Et_2O, and distn. of the combined filtrates gave 66% *ClCH:CHOBu*, b_{15} 48-50°, d_{20} 0.9883, n_D^{20} 1.4428. Similarly are obtained: 35% *ClCH:CHOEt*, b_{17} 47.5-8.5°, d_{20} 1.0386, n_D^{20} 1.4385; and 25% *ClCH:CHOCHMe₂*, b_{40} 44.5-5.7°, n_D^{20} 1.4390, d_{20} 1.0240. As by-products in these prepns. there are formed acetals: $ClCH_2CH(OR)_2$. G. M. K.

7-28-54

SIDEL'KOVSKAYA, F. P.

USSR/Chemistry - High-Molecular Compounds Jul/Aug 52

"Synthesis and Transformations of Vinylcaprolactam. I. Polymerization in the Presence of Hydrogen Peroxide," M. F. Shostakovskiy, F. P. Sidel'kovskaya, M.G. Zelenskaya, Inst of Org Chem, Acad Sci USSR

"Iz Ak Nauk SSSR, Otdel Khim Nauk" No 4, pp 690-695

Using undild acetylene (authors state that this is the procedure customary in the USSR as distinguished from foreign practice), the authors vinylated caprolactam. They found that the Na salt

229T18

of caprolactam (product of interaction of Na metal with caprolactam) is a suitable catalyst for the vinylation. They state that it is safer to use Na salt than K salt. They investigated polymerization of vinylcaprolactam in the presence of H_2O_2 at temps in the range 100-150° and found that with higher temps the rate of polymerization increases, while the quantity of catalyst that is needed drops.

229T18

CA

Synthesis and properties of the polymer of vinyl ethyl ether. M. F. Shostakovskiĭ, F. P. Sidel'kovskaya, and V. A. Gladyshevskaya. *Zhur. Priklad. Khim.* (J. Applied Chem.) 25, 102-4(1952).—The polymer of highest mol. wt. is obtainable only from a very pure monomer, which is best purified by distn., 5 aq. washes, drying with K_2CO_3, then with Na, and redistn. Freshly distd. pure $EtOCH:CH_2$, b. 35.5°, n_D^{20} 1.3778, d_4^{20} 0.7585, should not have any C_2H_2 or peroxides. To the monomer is added dropwise 5% $FeCl_3 \cdot 6H_2O$ in EtOH or BuOH, which leads to a delayed vigorous reaction and thickening of the material, which is placed in a bath at 45-50°, more catalyst soln. added until the desired 0.03 mole/100 ml. ether is attained, the process continued 3-4 hrs. at 45° (sufficient for a 200-g. batch), and the low-boiling matter removed *in vacuo*, leaving the polymer, n_D^{20} 1.4250-1.4540, η 1.13-1.20 poises (mol. wt. 4000). The product is nearly solid, insol. in H_2O, sol. in org. solvents, including EtOH. Its viscosity drops rapidly at 70-80°, apparently via oxidative destruction; however, even at 200-60° the material loss is but 0.3% in 3 hrs., although an AcH odor is pronounced. The polymer is stable to H_2O at room temp. G. M. Kosolapoff

SIDEL'KOVSKAYA, F. P.

Ethylvinyl Ether; Polymers and Polymerization

Polymer of ethylvinyl ether, synthesis and properties.
Zhur. prikl. khim., 25, No. 1, 1952
Laboratoriya Vinilovykh Sovidineniy Instituta Organicheskoy
Shimii AN SSSR

SO: Monthly List of Russian Accessions, Library of Congress, August 1952 1953, Uncl.

SIDEL' KOVSKAYA, F.P.

✓ Activation of vinylcaprolactam in the presence of hydrogen peroxide. M. F. Shostakovskii and F. P. Sidel'kovskaya. *Bull. Acad. Sci. U.S.S.R., Div. Chem. Sci.* 1953, 97-9 (Engl. translation).—See *C.A.* 48, 3254*f*. H. L. H.

Sidelkovskaya F. P.

Chemical Abst.
Vol. 48 No. 6
Mar. 25, 1954
Organic Chemistry

Activation of vinylcaprolactam in the presence of hydrogen peroxide. M. F. Shostakovskii and F. P. Sidel'kovskaya. *Izvest. Akad. Nauk S.S.S.R., Otdel. Khim. Nauk* 1953, 108-11.—The reaction of *N*-vinylcaprolactam (I) with H_2O in the presence of H_2O_2 is a 2-fold event, involving hydrolysis to caprolactam and AcH, and polymerization at the vinyl group. The latter reaction acquires greater and greater predominance as temp. is increased and the diln. of I is decreased. The reaction was followed by detn. of the AcH and isolation of the polymer (a resinous solid). A 1:10 molar mixt. of I and H_2O in 4 hrs. at 98-9° gave 19.5% polymer and 64% caprolactam; with a 1:15 molar ratio this became 15.3 and 75%, resp., while with a 1:135 ratio 7.5 and 84.5%, resp. Only a trace of reaction occurs at 79-80°. Without H_2O_2 no reaction occurs at 100°. In the above expts. 0.5 g. 28% H_2O_2 was used per 15.9 g. I.

G. M. Kosolapoff

1. SHOSTAKOVSKIY, M. F., SIDEL'KOVSKAYA, F. P.

2. USSR (600)

4. Lactams

7. Activation of vinylcaprolactam in the presence of hydrogen peroxide. Izv.
AN SSSR. Otd. khim. nauk. no. 1, 1953

9. Monthly List of Russian Accessions, Library of Congress, June 1953. Unclassified.

USSR/ Chemistry Hydrolysis

Card : 1/1 Pub. 40 - 17/27

Authors : Shostakovskiy, M. F., Sidel'kovskaya, F. P., and Zelenskaya, M. G.

Title : Ion hydrolysis of vinyl lactams in an acid medium

Periodical : Izv. AN SSSR. Otd. khim. nauk 4, 689 - 693, July - August 1954

Abstract : Ion hydrolysis of vinyl caprolactam and vinylpyrrolidone, was investigated under the effect of sulfuric acid. Lactams and acetaldehyde were found to be the products of ion hydrolysis. A method of quantitative determination of vinyl caprolactam and vinyl pyrrolidone, is described. The effect of acid concentration and temperature on the percentage yield of the hydrolysis products, is explained. Seven references: 6 USSR and 1 German (1900 - 1953). Tables.

Institution : Acad. of Sc. USSR, The N. D. Zelinskiy Institute of Organic Chemistry

Submitted : May 8, 1953

SIDELKOVSKAYA, F.P.

2446. **Methods of analysis of halogenated ethers. II. Analysis of $\alpha\beta$-dihalogeno- and $\alpha\beta\beta$-trihalogeno-alkyl ethers.** M. F. Shostakovsky and F. P. Sidelkovskaya (*J. Anal. Chem., U.S.S.R.*, 1953, ~~8 (2), 105–108~~).—Dichloro- and trichloroethyl alkyl ethers are hydrolysed by water alone giving HCl, which can be titrated with alkali or with $AgNO_3$. G. S. Smith

Inst. Organic Chemistry, AS USSR

~~(1954)Engl. Translation)~~

SIDEL'KOVSKAYA, F. P. 3

USSR .

Methods of analysis of simple halogenized ethers. II. Analysis of α,β-dihalo and α,β,β-trihaloalkyl ethers. M. F. Shostakovskii and F. P. Sidel'kovskaya. *J. Anal. Chem. U.S.S.R.* 9, 117-20 ~~(1954)(Engl. translation)~~.—See *C.A.* 48, 6910e. H. L. H.

SidelKovsKaya, F.P.

3000

Synthesis of alkoxyethylidenelactams. I. Alkoxyethylidenecaprolactams. M. F. Shostakovskii and F. P. Sidel'kovskaya. *J. Gen. Chem. U.S.S.R.* 24, ~~[illegible] (1954)~~ ~~(Engl. translation)~~.—See *C.A.* 49, 13095*b*. B. M. R.

(1)

SIDEL'KOVSKAYA, F. P.

USSR/Chemistry - Vinyl compounds

Card 1/1 : Pub. 151 - 19/42

Authors : Shostakovskiy, M. F., and Sidel'kovskaya, F. P.

Title : Synthesis of alkoxyethylidene lactams. Part 1.- Alkoxyethylidene caprolactams prolactams

Periodical : Zhur. ob. khim. 24/9, 1576-1581, Sep 1954

Abstract : The products obtained from the reaction of caprolactam with alpha-chloroethylbutyl and alpha-chlorodiethyl ether are described. It was found that the addition of caprolactam to vinyl butyl ether and butanol to vinyl-caprolactam, for the purpose of synthesizing butoxyethylidine caprolactam, brings unsatisfactory results especially with regard to the yield of the product searched for. The products formed during hydrolysis of alkoxyethylidene caprolactams in the presence of sulfuric acid are listed. Seven USSR references (1946-1954).

Institution : Acad. of Sc. USSR, Institute of Org. Chem., Laboratory of Vinyl Compounds

Submitted : May 10, 1954

Sidel'kovskaya F. P.

8

3 M. A YOUTZ
20 copies

Chemical transformations on unsaturated and high-molecular weight compounds. VI. Copolymerization of vinylcaprolactam and methyl methacrylate in the presence of benzoyl peroxide and the dinitrile of 2,2'-azodiisobutyric acid. M. F. Shostakovskii, F. P. Sidel'kovskaya, and A. M. Khomutov, *Bull. Acad. Sci. U.S.S.R., Div. Chem. Sci.* 1955, 835-40(Engl. translation).—See *C.A.* 50, 9202*a*.
B. M. R.

Chem

Sidel'kovskaya, F. P.

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a Chemical transformations on unsaturated and high-molecular weight compounds. VI. Copolymerization of vinylcaprolactam and methyl methacrylate in the presence of benzoyl peroxide and the dinitrile of 2,2'-azodiisobutyric acid. M. F. Shostakovskii, F. P. Sidel'kovskaya, and A. M. Khomutov (N. D. Zelinskii ~~Inst. Org. Chem.,~~ Moscow). *Izvest. Akad. Nauk S.S.S.R., Otdel. Khim. Nauk* 1955, 919-21; cf. *C.A.* 47, 9017*g*; 48, 6159*c*; 50, 1674*h*.—Vinylcaprolactam and $MeO_2CCMe:CH_2$ were copolymerized in the presence of either Bz_2O_2 or $(:NCMe_2CN)_2$ in various proportions of the monomers. b The content of methacrylate links in the copolymers ranged from 85.7 to 27.6 mole-%. The products were sol. in Me_2CO, C_6H_6, and EtOH but insol. in Et_2O; those with high content of methacrylates were insol. in H_2O. The polymerizations were run at 60° for 48-72 hrs. with 0.3% initiator. The copolymers appeared to be inhomogeneous in their behavior with solvents, but no polymers of the initial monomers alone were found.

G. M. Kosolapoff

Sidel'Korskaya, F.P

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Chem

Polymerization of vinyl isopropyl and vinyl cyclohexyl ethers under the influence of isobutyro-2,2'-azobisnitrile. M. F. Shostakovskii, F. P. Sidel'kovskaya, and E. S. Shapiro (N. D. Zelinskii Inst. Org. Chem., Moscow). *Izvest. Akad. Nauk S.S.S.R., Otdel. Khim. Nauk* 1955, 1035-9.—Heating $CH_2{:}CHOCHMe_2$ at 40-60° with 0.1-5% $(:NCMe_2CN)_2$ gave polymers, viscous liquids, of unknown mol. wt. $CH_2{:}CHOC_6H_{11}$ under similar conditions gave polymers, m. 47-9°, mol. wt. up to 1440, the products contg. up to 0.9% N. The polymers were sol. in usual solvents. $CH_2{:}CHOPh$ after 100-280 hrs. also gave polymeric products consisting of 5-6 monomer links with an azonitrile terminal group; the yields were very low. G. M. K.

SIDEL'KOVSKAYA, F.P.

SHOSTAKOVSKIY, M.F.; SIDEL'KOVSKAYA, F.P.; ZELENSKAYA, M.G.; MORGUNOVA, Ye.S.

Polymerization of vinyl lactams. Soob.o nauch.rab.chl.VKHO no.3:5-8 '55. (MIRA 10:10)

(Polymerization) (Lactams)

Sidel'kovskaya, F. P.

Low-molecular-weight polymerization of vinyl ethers under the action of benzoyl peroxide. M. F. Shostakovskii, E. S. Shapiro, and F. P. Sidel'kovskaya. *Bull. Acad. Sci. U.S.S.R. Div. Chem. Sci.* 1956, 851-4 (Engl. translation).—See *C.A.* 50, 11062*h*. B. M. R.

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Low-molecular-weight polymerization of vinyl ethers under the action of benzoyl peroxide. M. F. Shostakovskii, E. S. Shapiro, and E. P. Sidel'kovskaya (N. D. Zelinskii Inst. Org. Chem., Moscow). ~~Izvest. Akad.~~ Nauk S.S.S.R., Otdel. Khim. Nauk 1956, 368-72.—Polymerization of BuOCH:CH_2 and iso-PrOCH:CH_2 with 0.1-1.0% Bz_2O_2 at 60° and 80° showed that with lower than 2% concn. of Bz_2O_2 the reaction is that of low-mol.-wt. polymerization; with 5-10% catalyst this is complicated by reactions of addn. The polymers had mol. wts. of 330-1215.

G. M. Kosolapoff

SHOSTAKOVSKIY, M.F.; SIDEL'KOVSKAYA, F.P.; ZELENSKAYA, M.G.

Use of the iodoform reaction in the analysis of certain vinyl compounds.
Izv.AN SSSR Otd.khim.nauk no.5:615-621 My '56. (MLRA 9:9)

1.Institut organicheskoy khimii imeni N.D.Zelinskogo Akademii nauk SSSR.
(Iodoform) (Vinyl compounds)

Sidel' Kovskaya, F. P.

Distr: 4E4j/4E3d/4E2c(j)

Synthesis of methylolpyrrolidone. M. F. Shostakovskii, E. F. Sidel'kovskaya, and M. G. Zelenskaya (N. D. Zelinskii Inst. Org. Chem., Moscow). *Izvest. Akad. Nauk S.S.S.R., Otdel. Khim. Nauk* 1957, 762; cf. Breitenbach and Wolf, *C.A.* 50, 12972*h*.—CH_2O with lactams in alk. medium gave 85-90% $\overline{(CH_2)_3.CO.N}CH_2OH$, m. 77-9.5°, which with $SOCl_2$ gave the chloride, b_4 97-7.5°, n_D^{20} 1.5022, d_{20} 1.2381, which is readily hydrolyzed by H_2O. Thus, an authentic methylolpyrrolidone has been obtained.

G. M. Kosolapoff

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62-11-24/29

AUTHORS: Shostakovskiy, M. F., Sidel'kovskaya, F. P, Zelenskaya, M. G.

TITLE: Investigations in the Field of Lactones and Lactames. (Issledovaniye v oblasti laktonov i laktamov). 8. Report **Preparation of Polyvinylpyrrolidone with Protracted Action (Soobshcheniye 8. Polucheniye preparata polivinilpirrolidona prolongiruyushchego deystviya).**

PERIODICAL: Izvestiya AN SSSR, Otdel.Khim.Nauk, 1957, Nr 11, pp. 1406-1408 (USSR)

ABSTRACT: The task of the present paper was the production of polymers of the vinylpyrrolidone with relatively high molecular weight, discovering the characteristics for an active preparation in extended view and ascertaining the conditions for the production of it. For this purpose the polymerization of the vinylpyrrolidone under presence of H_2O_2 and of the azoisobutyric-acid-dinitril as well as in a aqueous solution under the influence of H_2O_2 was investigated. It is shown that in the presence of azoisobutyric-acid-dinitril the polymerization takes place at a lower temperature but also much slower than in a plymerization with H_2O_2. The plymeride developping on this occasion show a much higher viscosity, but have no colour or odour. The polymeride obtained at more than 100° almost always have an unpleasant scent and a yellowish colour. The polymerization under H_2O_2-influence in a

Card 1/2

62-11-24/29

Investigations in the Field of Lactones and Lactames.
8. Report. **Preparation of Polyvinylpyrrolidone with Protracted Action.**

solution has higher advantages than such"in a block": 1) This
process takes place at relatively lower temperature, 2) the
product output becomes higher, 3) the polymeride developing is
colourless and has no odour. In the physiological experiments
at the 1. Moscow Institute for Medicine (reference 3) it was
ascertained that the samples with a relative viscosity of a 3%
aqueous solution of 3.7 to 4.o are the most effective as "pro-
longator". The best sample showed a relative viscosity of 3,74,
an osmotic pressure of 27o mm water column and an average molar
weigth of~5o coo. There are 1 table, 3 references,1 of which is
Slavic.

ASSOCIATION: Institute for Organic Chemistry imeni N.D.Zelinskiy of the AN
USSR (Institut organicheskoy khimii im.N. D. Zelinskogo Akademii
nauk SSSR.)

SUBMITTED: June 21, 1957

AVAILABLE: Library of Congress.

Card 2/2

Sidel'kovskaya, F.P.

62-12-5/20

AUTHORS: Shostakovskiy, M.F., Sidel'kovskaya, F.P., Zelenskaya, M.G.

TITLE: Investigations Carried out in the Fields of Lactones and Lactams (Issledovaniye v oblasti laktonov i laktamov). Information 9. The Synthesis of the Vinyllactams and Some of Their Properties (Soobshcheniye 9. Sintez vinillaktamov i ikh nekotoryye svoystva).

PERIODICAL: Izvestiya AN SSSR Otdeleniye Khimicheskikh Nauk, 1957, Nr 12, pp. 1457-1464 (USSR)

ABSTRACT: In publications dealing with chemical problems much attention has recently been paid to the synthesis and polymerization of nitrogen-containing vinyl compounds. Among these methods, there is the reaction of direct vinylization suggested by Favorskiy and Shostakovskiy, which was carried out with alcohols and phenols. Further working out of this reaction made it possible to synthesize a number of valuable preparations. The authors gave a report about the vinylization of lactams by using pyrrolidone, piperidone and capro-lactam as examples. The catalyzers of vinylization are alkaline salts of lactams. It was shown that the most simple method of preparing the salts is the direct interaction between lactams and alkaline metals. It was

Card 1/2

62-12-5/20

Investigations Carried out in the Fields of Lactones and Lactams. Information 9. The Synthesis of the Vinyllactams and Some of Their Properties

further shown that vinylperidone as well as other vinyl lactams must be hydrolyzed in an acid medium. Optimum conditions of hydrolysis were found. The polymerization of vinyl lactams was carried out under the influence of dinitryl of azoiso-butyric acid as well as under the influence of H_2O_2 in an aqueous solution. The authors then describe a simultaneous polymerization of the vinyl peridone with the methyl ester of methacrylic acid. There are 7 tables, and 17 references, 11 of which are Slavic.

ASSOCIATION: Institute for Organic Chemistry AN USSR imeni N.D.Zelinskiy (Institut organicheskoy khimii im. N.D.Zelinskogo Akademii nauk SSSR).

SUBMITTED: July 3, 1956

AVAILABLE: Library of Congress

Card 2/2
1. Lactones-Vinylization 2. Lactams-Vinylization 3. Alcohols 4. Phenols 5. Pyrrolidone

SIDELKOVSKAYA, F P

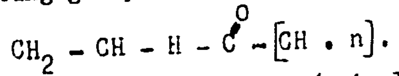
30-7-8/36

AUTHOR SHOSTAKOVSKIY, M.F., Dr. chem. sc., SIDELKOVSKAYA, F.P., cand.chem.sc.

TITLE On the Vinyl-Lactams and Their Polymers
(O vinillaktamakh i ikh polimerakh. Russian)

PERIODICAL Vestnik Akademii Nauk SSSR, 1957, Vol 27, Nr 7, pp 45 - 51 (U.S.S.R.)

ABSTRACT During recent years great achievements were attained in the field of the chemistry of vinyl compounds. Quite a number of saturated compounds were obtained which contain atoms of oxygen, sulfur and silicon. An especially interesting group of compounds are the vinyl lactams of the general structure:



$CH_2 - CH - H - \overset{O}{C} - [CH \cdot n].$

(n = trivalent vinylpyrrolidone, n = 4-vinylpiperidone, n = 5-vinylcaprolactam). The first report on a synthesis of vinyl lactams came from the I.G. Farbenindustrie. Already for several years work has been done in the Institute for Organic Chemistry of the Academy of Science of the U.S.S.R. on the investigation of the synthesis and the transformation of vinyllactams, in order to obtain vinylpyrrolidone. The polymerization is of special interest. During recent years various papers were published which prove the use of vinylpyrrolidone in other fields of scientific research. Due to its strong inclination toward formation of complex compounds, its easy solubility in H_2O and in organic solvents, polyvinylpyrrolidone

Card 1/2

SIDEL'KOVSKAYA, F. P.

4

Synthesis of γ-butyrolactone. M. E. Shostakovskii, F. P. Sidel'kovskaya, and M. G. Zelenskaya. Zhur. Priklad. Khim. 30, 324-9(1957).—γ-Butyrolactone (I) was prepd. by passing the vapors of 1,4-butanediol (II) in a current of H and N over a Cu catalyst at 220-40°. The catalyst was prepd. by shaking 200 ml. pumice powder with 13.4 g. $[CuCO_3Cu(OH)_2]$, 7.1 g. $Na_2SiO_3.8H_2O$, and 13.4 ml. H_2O; the coated pumice was placed in the reactor and heated in N 8 hrs. at 100° and then in H till no more H_2O or CO_2 formed. II was dropped on the catalyst at 20-35 ml./hr. with H at 100-200 l./hr. to yield 90.1% I and the catalyst remained active after 10-20 expts. In a current of N (400 l./hr.) the yield was only 28.2% in the first run and 6% in the second run, without regeneration of the catalyst. Regeneration after 3-4 hrs. in a current of H, 2-5 l./hr., at 200° increased the yield to 40%. Complete regeneration which consisted of heating 8 hrs. at 300° in air and then 10 hrs. at 200° in H increased the yield of I to 50%. These facts were taken as evidence in support of the postulate that H functions more than as a carrier of II, H is adsorbed by the catalyst and enters the reaction, and as long as a reservoir of adsorbed H is present the reaction takes place in N.

I. Bencowitz

SIDELKOVSKAYA F.P.

AUTHORS: Shostakovskiy, M. F., Shapiro, E. S. 62-1-12/29
Sidel'kovskaya, F. P.

TITLE: Investigation in the Field of the Lactones and Lactams (Issledovaniye v oblasti laktonov i laktamov). Report 10: On the Reaction of the Addition of Hydrogen Sulfide to Vinyllactames (Soobshcheniye 10. O reaktsii prisoyedineniya serovodoroda k vinillaktamam)

PERIODICAL: Izvestiya AN SSSR Otdeleniye Khimicheskikh Nauk, 1958, Nr 1, pp 68 - 74 (USSR)

ABSTRACT: The reactions of the above mentioned compound according to the general formula have practically not been treated at all in the references and were the object of detailed investigation in the laboratory of the authors. Already the investigation of the properties of the vinylcaprolactame and vinylpyrrolidone showed that they can quantitatively hydrolyze according to the ion mechanism (in acid medium). The reaction of the alcohols with vinylprolactame took place under formation of alkoxyethylideslactame only up to 8% (since the process was complicated by the by-reactions). The behavior of the vinyllactames in the above mentioned reaction is to a certain extent similar to the behavior of thionylethers (and of vinylethylsulphide). (tables 1 and2).

Card 1/2

Investigation in the Field of the Lactones and Lactams 62-1-12/29
Report 16. On the Reaction of the Addition of Hydrogen Sulfide to Vinyllactames

In the present paper the authers report on the investigation of the reaction of the above mentioned compound and prove that on the basis of the vinylcaprolactame and vinylpyrrolidone sulfides and thioles can be obtained with a general yield of 75--85%. Furthermore it was found that the second reaction stage had a greater velocity than was assumed and thus leads to the formation of sulfide. The synthesis of the thiole (on the basis of vinylkaprolactame) succeeded with a yield of 40-45%. It was shown that the reaction of the compound of hydrogen sulfide with vinylcaprolactame is retarded in the case of that the latter had came for a longer time into contact with air. The synthesis of thiole with the pyrrolidone ring was realized with a yield of 60% (after the reaction between N-B-chloroethylpyrrolidone and NaSH had taken place). There are 2 tables and 15 references, 14 of which are Slavic.

ASSOCIATION: Institute of Organic Chemistry imeni N.D.Zelinskiy, AS USSR
(Insitut organicheskoy khimii i..N.D. Zelinskogo Akademii nauk SSSR)

SUBMITTED: July 6, 1956

1. Lactones-Derivatives 2. Lactams-Derivatives 3. Hydrogen sulfide-Chemical reactions 4. Vinyllactames-Chemical reactions 5. Thiols-Synthesis

SIDEL'KOVSKAYA, F. P.

AUTHORS: Shostakovskiy, M. F., Sidel'kovskaya, F. P. 62-1-24/29

TITLE: Investigation in the Field of Lactones and Lactams (Issledovaniye v oblasti laktonov i laktamov). Report 11: Condensation of Ethylene Oxide with Lactams (Soobshcheniye 11.Kondensatsiya okisi etilena s laktamami)

PERIODICAL: Izvestiya AN SSSR Otdeleniye Khimicheskikh Nauk, 1958, Nr 1, pp 111 - 115 (USSR)

ABSTRACT: The reaction of the condensation of organic oxides with lactams has hitherto not been described in literature. In the present paper the interaction of oxyethylene with pyrrolidone and caprolactames was investigated. The process took place at a temperature of 20, 60, and 200° in the presence of H_2O, CH_3OH, H_2SO_4 (or without them). At temperatures of 20 and 60° the oxyethylene did not react with pyrrolidone. At $200-210^{\circ}$ an interaction between the above mentioned substances took place with formation of N-(β-oxyethyl)pyrrolidone, formerly synthetized from butyrolactone and ethanolamine 5 (table 1). In order to confirm the structure N-(β-hydroxyethyl)-pyrrolidone was transformed into chloroethylpyrrolidone by interaction with chlorothionyl. The yield of chloroethylpyrrolidone amounted to ~90%. The results of the other experiments are shown in the table. There are

Card 1/2

Investigation in the Field of Lactones and Lactams 62-1-24/29
Report 11: Condensation of Ethylene Oxide with Lactams

1 table, 6 references, 2 of which are Slavic.

ASSOCIATION: Institute of Organic Chemistry Imeni N. D. Zelinskiy AS USSR (Institut organicheskoy khimii im. N.D. Zelinskogo Akademii nauk SSSR)

SUBMITTED: July 26, 1957

AVAILABLE: Library of Congress

1. Ethylene oxide-Condensation reactions 2. Lactams-Chemical reactions

Card 2/2

SOV/62-58-9-15/26

AUTHORS: ~~Sidel'kovskaya, F. P.~~, Zelenskaya, M. G.,
Shostakovskiy, M. F.

TITLE: **Studies in the Field of** Lactones and Lactams (Issledovaniye v oblasti laktonov i laktamov) Communication 12: Vinyl Ether of N-(β-Oxyethyl)Pyrrolidone (Soobshcheniye 12. Vinilovyy efir N-(β-oksietil)pirrolidona)

PERIODICAL: Izvestiya Akademii nauk SSSR. Otdeleniye khimicheskikh nauk, 1958, Nr 9, pp 1111 - 1118 (USSR)

ABSTRACT: During the last year various nitrogen-containing vinyl compounds with remarkable properties were synthesized. The authors of this paper attempted to prepare the vinyl ether of N-(β-oxyethyl) lactam in order to study its properties and in order to compare the properties of the vinyl ethers of N-substituted β-ethanolamine with those of the vinyl lactams. The vinyl ether of N-(β-oxyethyl) pyrrolidone was synthesized. In addition the authors investigated the reaction between δ -valerolactone and ethanolamine at 200° C. Under the reaction conditions the 6-membered ring apparently opens. Using the example

Card 1/3

SOV/62-58-9-13/26

Studies in the Field of Lactones and Lactams.
Communication 12: Vinyl Ether of N-(β-Oxyethyl)Pyrrolidone

of the reaction of the compound with butanol it was shown that the vinyl ether of N-(β-oxyethyl)pyrrolidone combines with alcohols. Di-N-(ethylpyrrolidonyl)acetal and butyl-N-(ethylpyrrolidonyl) acetal were isolated. The thermal decomposition of butyl-N-(ethylpyrrolidonyl) acetal was investigated. It was shown that the vinyl ether of N-(β-oxyethyl)pyrrolidone combines with hydrogen chloride. The product formed is unstable and upon standing is transformed into the chlorohydrate of N-(β-oxyethyl)pyrrolidone. It was found that the vinyl ether of N-(β-oxyethyl)pyrrolidone polymerizes under the influence of the dinitrile of isobutyric acid vapor and hydrogen peroxide. It tends to polymerize thermally, but in the presence of 0,2% benzoyl peroxide (at 60° C) it does not polymerize. There are 2 tables and 9 references, 6 of which are Soviet.

ASSOCIATION: Institut organicheskoy khimii im.N.D.Zelinskogo Akademii nauk SSSR (Institute of Organic Chemistry imeni N.D.Zelinskiy, AS USSR)

Card 2/3

SOV/79-28-10-45/60

AUTHORS: Shostakovskiy, M. F., Kochkin, D. A., Neterman, V. A., Sidel'kovskaya, F. P.

TITLE: Investigations in the Field of the Synthesis and Conversions of Oxygen-Containing Organosilicon Compounds (Issledovaniya v oblasti sinteza i prevrashcheniy kislorodsoderzhashchikh kremneorganicheskikh soyedineniy)
On the Reaction of Vinyl Alkyl-Chloro Silanes With Vinyl Butyl Ether and Vinyl Lactams (O vzaimodeystvii vinilalkilkhlorsilanov s vinilbutilovym efirom i vinillaktamami)

PERIODICAL: Zhurnal obshchey khimii, 1958, Vol 28, Nr 10, pp 2840-2841 (USSR)

ABSTRACT: It is a well known fact (Refs 1, 2) that vinyl alkyl-chloro silanes do not polymerize, and that if they do, they form polymers of low molecular weights. Their polymerization, either single or together with other unsaturated compounds, suggested itself. The authors found that vinyl alkyl dihalogens polymerize neither at high temperatures (100°, 200 hours), nor with catalysts. On the other hand, the unsaturated organosilicon compounds with a double bond in the middle of the

Card 1/3

SOV/79-28-10-45/60

Investigations in the Field of the Synthesis and Conversions of Oxygen-Containing Organosilicon Compounds. On the Reaction of Vinyl Alkyl-Chloro Silanes With Vinyl Butyl Ether and Vinyl Lactams

silicon-carbon chain or with two conjugated double bonds tend to polymerization, either with the action of initiators or of light. Thus ethyl-dichloro butadiene silane $C_2H_5SiCl_2CH{=}CHCH{=}CH_2$ was changed, with the action of light, into a transparent, caoutchouc-like mass, within five months. At room temperatures and at 60^{o}, ro joint polymerization of the vinyl alkyl-chlorosilanes could be observed in the joint reaction of the vinyl methyl- and vinyl ethyl-dichloro silane pairs with vinyl butyl ether, vinyl caprolactam, and vinyl pyrrolidone, in the presence of azoisobutyro nitrile. In this case, the vinyl alkyl-chloro silanes act as initiators of the polymerization of vinyl butyl ether, vinyl caprolactam, and vinyl pyrrolidone. However, in the case of a reaction of vinyl alkyl-dichloro silanes with vinyl pyrrolidone, a small quantity of products containing silicon and nitrogen and probably constituting products of the reaction of these monomers, were obtained in addition to its polymers. Thus the monomer pairs do not, in effect, form a joint polymer. The polymers of vinyl

Card 2/3

SOV/79-28-10-45/60

Investigations in the Field of the Synthesis and Conversions of Oxygen-Containing Organosilicon Compounds. On the Reaction of Vinyl Alkyl-Chloro Silanes With Vinyl Butyl Ether and Vinyl Lactams

butyl ether, vinyl caprollactam, and vinyl pyrrolidone result as the main products of the reaction of the above-mentioned compounds. There are 3 references, 1 of which is Soviet.

ASSOCIATION: Institut organicheskoy khimii Akademii nauk SSSR
(Institute of Organic Chemistry at the Academy of Sciences, USSR)

SUBMITTED: August 17, 1957

Card 3/3

5(3)

AUTHORS: Shostakovskiy, M. F., Sidel'kovskaya, F. P., Zelenskaya, M. G. SOV/62-59-3-20/37

TITLE: Investigation in the Field of Lactones and Lactams (Issledovaniye v oblasti laktonov i laktamov). Communication 13. Alkoxyethylidene-pyrrolidones (Soobshcheniye 13. Alkoksietilidenpirrolidony)

PERIODICAL: Izvestiya Akademii nauk SSSR. Otdeleniye khimicheskikh nauk, 1959, Nr 3, pp 516-520 (USSR)

ABSTRACT: In order to obtain vinylpyrrolidone, in the present paper alkoxyethylidene-pyrrolidones were synthesized and their thermal decomposition investigated. Several methods of synthesis were applied: The interaction of vinylalkylethers with pyrrolidone, the reaction of vinylpyrrolidone with alcohol and the reaction of the α-chloroethylalkylether with pyrrolidone. The best results were obtained in the reaction of pyrrolidone with α-chloroethylalkylether. The character and the yield of the resulting products chiefly depend on the reaction conditions, especially on temperature and initial components (Table). A lower temperature and excess pyrrolidone favor the formation of pyrrolidone hydrochloride (Experiments 1,3,4).

Investigation in the Field of Lactones and Lactams. SOV/62-59-3-20/37
Communication 13. Alkoxyethylidene-pyrrolidones

An increase in temperature up to 85° provides a good yield of ethylidene-bis-N-N'-pyrrolidone (Experiments 6,10). Experiment 2 shows optimum conditions for the formation of butoxyethylidene pyrrolidone and experiment 9 for the formation of isopropoxyethylidene pyrrolidone. The most comfortable method of synthesis of alkoxyethylidene pyrrolidones as well as of alkoxyethylidene caprolactams is the interaction of α-chloroethylalkylethers with lactams. This reaction, however, exhibits a number of peculiar features for pyrrolidone. The yield of alkoxyethylidene pyrrolidones, for instance, is small, further, in addition to them ethylidene-bis-N-N'-pyrrolidone is always formed. Certain differences may be observed also on the thermal decomposition of these two compounds. On thermal decomposition of alkoxyethylidene caprolactams vinylcaprolactam is obtained in high yield (70-80 %). On the other hand it is not always possible to obtain vinylpyrrolidone on decomposition of alkoxyethylidene pyrrolidones. On decomposition of butoxyethylidene pyrrolidone vinylpyrrolidone in a ~ 40 % yield and butanol were obtained. On decomposition of isopropoxyethylidenepyrrolidone isopropyl alcohol, pyrrolidone, and ethylidene-

Investigation in the Field of Lactones and Lactams. SOV/62-59-3-20/37
Communication 13. Alkoxyethylidene-pyrrolidones

-bis-N-N'-pyrrolidone were separated. The thermal decomposition of ethylidene-bis-N-N'-pyrrolidone takes place at considerably higher temperature than the decomposition of alkoxyethylidene lactams. As result of this decomposition pyrrolidone and a resinous residue were separated. There are 1 table and 8 references, 5 of which are Soviet.

ASSOCIATION: Institut organicheskoy khimii im. N. D. Zelinskogo Akademii nauk SSSR (Institute of Organic Chemistry imeni N. D. Zelinskiy of the Academy of Sciences, USSR)

SUBMITTED: June 21, 1957

Card 3/3

5(3)

AUTHORS: Shostakovskiy, M. F., Sidel'kovskaya, F. P., Zelenskaya, M. G. SOV/62-59-4-29/42

TITLE: Reaction of Propylene Oxide With α-Pyrrolidone (Reaktsiya okisi propilena s α-pirrolidonom)

PERIODICAL: Izvestiya Akademii nauk SSSR. Otdeleniye khimicheskikh nauk, 1959, Nr 4, pp 738-740 (USSR)

ABSTRACT: This is a brief report on the investigation of the reaction of α-pyrrolidone with propylene oxide. In this case the oxide ring opens in a way so that a secondary alcohol is formed:

$$CH_3\overline{CHCH_2O} + \overline{NHCO(CH_2)_3} — CH_3CH(OH)CH_2\overline{NCO(CH_2)_3}$$

The structure of the N-(β-oxypropyl)-α-pyrrolidone obtained was proved by the synthesis of γ-butyrolactone and amino-isopropanol. The aminoisopropanol required was obtained from ammonia and propylene oxide (Ref 3). Upon interaction of N-(β-oxypropyl)-α-pyrrolidone with thionyl chloride the hydroxyl group was substituted by chlorine and N-(β-chloropropyl)-α-pyrrolidone obtained. Upon heating with aqueous alkali this chloride is hydrolyzed (Table),

Card 1/2

although, more slowly than the N-(chloromethyl) α-pyrrolidone obtained earlier (Ref 4) which saponifies quantitatively at room temperature even in the absence of alkali. Upon heating of N-(β-chloropropyl) α-pyrrolidone with caustic potash in benzene solution, HCl was separated and N-(propenyl) α-pyrrolidone formed. The position of the double bond was determined by spectroscopy. This investigation was carried out by T. N. Shkurina. There are 1 table and 6 references, 3 of which are Soviet.

ASSOCIATION: Institut organicheskoy khimii im. N. D. Zelinskogo Akademii nauk SSSR (Institute of Organic Chemistry imeni N. D. Zelinskiy of the Academy of Sciences, USSR)

SUBMITTED: July 24, 1958

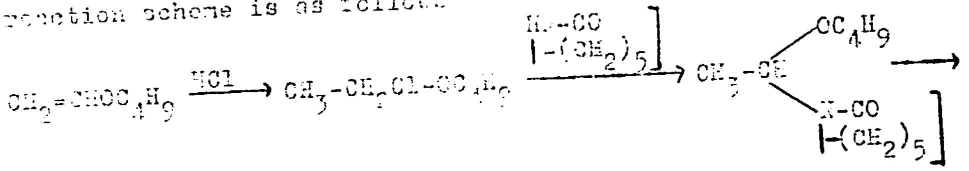
5 (3) SOV/62-59-5-19/40

AUTHORS: Shostakovskiy, M. F., Sidel'kovskaya, F. P.

TITLE: Investigation in the Field of Lactones and Lactams (Issledovaniye v oblasti laktonov i laktamov). Communication 14. Synthesis of Vinylcaprolactam by the Method of Indirect Vinylation (Soobshcheniye 14. Sintez vinilkaprolaktama metodom kosvennogo vinilirovaniya)

PERIODICAL: Izvestiya Akademii nauk SSSR. Otdeleniye khimicheskikh nauk, 1959, Nr 5, pp 892-895 (USSR)

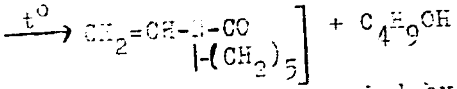
ABSTRACT: In a previous work the authors found that alkoxyethylidenelactams can be used in the indirect introduction of the vinyl group into the lactam molecule. The course of the reaction is illustrated by the example of butoxyethylenecaprolactam. The reaction scheme is as follows:



$$CH_2=CHOC_4H_9 \xrightarrow{HCl} CH_3-CH_2Cl-OC_4H_9 \xrightarrow{\left[\begin{smallmatrix}HN-CO \\ |-(CH_2)_5\end{smallmatrix}\right]} CH_3-CH\left<\begin{matrix}OC_4H_9 \\ \left[\begin{smallmatrix}N-CO \\ |-(CH_2)_5\end{smallmatrix}\right]\end{matrix}\right. \longrightarrow$$

Card 1/3

Investigation in the Field of Lactones and Lactams. SOV/62-59-5-19/40
Communication 11. Synthesis of Vinylcaprolactam by the Method of Indirect
Vinylation



$$\xrightarrow{t^{o}} CH_2{=}CH{-}N{-}CO \;|{-}(CH_2)_5\Big] + C_4H_9OH$$

The process is accompanied by thermopolymerization of lactam
by which the monomer yield of this compound is considerably
reduced. This paper gives a detailed investigation of the
thermal decomposition of alkoxyethylidenecaprolactams in order
to improve the conditions of synthesis of the indirect
vinylation method. Butoxy-, ethoxy-, and isopropoxy-
ethylidenecaprolactam were used as examples in the
investigation of the reactions. Caprolactam and α-chloroethyl-
isopropyl ether were the initial products of the synthesis.
The highest yield was obtained when the two substances showed
a ratio of 1 : 2. Thermal decomposition was investigated at
200-280°. At the same time the corresponding alcohols and
vinylcaprolactams are formed. The yield of vinylcaprolactam
increases if the decomposition takes place in the presence of
1 % hydroquinone; it then amounts to 80 %. If

Card 2/3

Investigation in the Field of Lactones and Lactams. SOV/[illegible]
Communication 14. Synthesis of Vinylcaprolactam by the Method of Indirect Vinylation

alkoxymethylidenelactams are heated in the presence of small quantities of concentrated hydrochloric acid they undergo partial hydrolysis. The syntheses and methods of investigation are described in detail in the experimental part. There are 1 table and 5 Soviet references.

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Card 3/3

5 (3)

AUTHORS: Shostakovskiy, M. F., Vasil'yev, A. S., SOV/62-59-5-20/40
Sidel'kovskaya, F. P., Morgunova, Ye. S., Zelenskaya, M. G.,
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TITLE: Investigation in the Field of Lactones and Lactams
(Issledovaniye v oblasti laktonov i laktamov). Communication
15. Preparations of Polyvinylpyrrolidones Having Different
Molecular Weights and Their Physico-chemical Properties
(Soobshcheniye 15. Preparaty polivinilpirrolidona razlichnogo
molekulyarnogo vesa i ikh fizikokhimicheskiye svoystva)

PERIODICAL: Izvestiya Akademii nauk SSSR. Otdeleniye khimicheskikh nauk,
1959, Nr 5, pp 896-900 (USSR)

ABSTRACT: "Block polymerization" of vinylpyrrolidone under the effect
of H_2O_2 and of dinitrile of azoisoolaic acid, and polymerization
in aqueous solutions (Refs 3, 5) had been investigated at the
Institute mentioned under Association. In connection with it,
the physico-chemical properties of various preparations of
polyvinylpyrrolidone (PVP) were investigated in this work
because these properties are very important for the
investigation of the biologic activity of the preparations.

Card 1/3

Investigation in the Field of Lactones and Lactams. SOV/62-59-9-20/40
Communication 15. Preparations of Polyvinylpyrrolidones Having Different
Molecular Weights and Their Physico-chemical Properties

The preparations can be obtained in various ways; therefore, they may exhibit slight deviations from their physico-chemical characteristics. (Table 1: physico-chemical characteristics of (PVP) solutions as produced in various countries). The polymerization conditions for (PVP) from aqueous solutions in the presence of 30 % H_2O_2 and with 0.3-0.5 % concentrations of this initiator are summarized in table 2. The characteristics of salt water solutions of (PVP) being used as a plasmosubstitute are shown in table 3. Relative viscosity, osmotic pressure, and the molecular weight of the various preparations were determined. A comparison of the characteristics shows that those of (PVP) are more effective than those of the plasmosubstitute. 1.8 % H_2O_2 had to be used as initiator in order to obtain a highly effective polymer. The determination of the molecular weight and the investigation of the polydispersity of several preparations showed that the block polymers have a higher degree of polydispersity than those obtained in solutions. Moreover,

Card 2/4